To: Hedrick, Elizabeth[Hedrick.Elizabeth@epa.gov]
Cc: Allgeier, Steve[Allgeier.Steve@epa.gov]; Mapp, Latisha[Mapp.Latisha@epa.gov]
From: Travers, David
Sent: Mon 1/13/2014 7:42:13 PM
Subject: RE: OW Management Report - Charleston, WV Chemical Spill - 1/13/2014

Thanks, that does help. It seems, and I say this only a little facetiously, that enough labs are involved in the response that we could do a de facto multi-lab validation.

From: Hedrick, Elizabeth
Sent: Monday, January 13, 2014 2:22 PM
To: Travers, David
Cc: Allgeier, Steve; Mapp, Latisha
Subject: RE: OW Management Report - Charleston, WV Chemical Spill - 1/13/2014

1. EPA's Forum on Environmental Methods (FEM) has this policy on emergency response methods:

"*This policy directive addresses those situations in which a method must be developed, validated, and/or peer reviewed expeditiously for utilization in an emergency response situation. Also, in such emergency response situations only, an analytical method may be employed that has been validated by another established laboratory network (e.g., the Center for Disease Control and Prevention's Laboratory Response Network, the U.S. Department of Agriculture/Food and Drug Administration's Food Emergency Response Network). In those instances, the responsible federal agency will indicate that the level of validation and/or peer review that their analytical method underwent is consistent with the Integrated Consortium of Laboratory Networks (ICLN) Guidelines for Comparison of Validation Levels between Networks.*"

The ICLN guidelines are a separate document that contain different validation levels (relating mainly to number of labs involved in validation) and different requirements for chemical, microbiological and radiological methods. They are simple validation steps, really. If the CDC ATSDR is considered in the ICLN due to CDC purview, then we expect/assume that some minimal single lab validation of the modified Eastman method occurred. I have not seen any validation data, though, so it is an *assumption* I hope is accurate. I believe everyone would like to see the actual modified Eastman method for water and supporting data to determine if the ICLN guidelines were used. There may be questions later about the quality of the data and it would be a good thing to be able to say a consortium of lab networks approved the validation guidelines that were used.

2. Right now, fairly high concentration work is being done to detect MCHM below 1 ppm so that remediation can start. For drinking water remediation, there may be a desire for highly accurate detection at much lower levels than in the initial response, detection of disinfection product(s) of MCHM, detection of impurities that may also pose health risks, and even remediating to a level that removes the odorant. In that case, more methods work would be required. These are just possible issues we should keep in mind in case we're invited in to support any methods development work.

3. Steve provided the third comment so he can chime, too. GCWW got some MCHM from WVA and used EPA Method 524.3, a purge and trap GC-MS method. MCHM is not on the analyte list of 524.3 but probably came through the column pretty fast given its BP. GCWW is not performing EPA work so no one is going to be asking them for ICLN emergency response validation data or dictate that they use the modified Eastman method. I still have pretty high confidence in GCWW work regardless. It's when data starts feeding into an EPA program that validation data is really going to be important.

Hope that helps.

Elizabeth

Water Security Division

Office of Ground Water and Drinking Water

U.S. Environmental Protection Agency

26 West Martin Luther King Drive

MS 140

Cincinnati, Ohio 45268

Ph (513) 569-7296

Fax (513) 569-7191

From: Travers, David
Sent: Monday, January 13, 2014 1:21 PM
To: Hedrick, Elizabeth
Cc: Allgeier, Steve; Mapp, Latisha
Subject: FW: OW Management Report - Charleston, WV Chemical Spill - 1/13/2014

E, can you explain briefly in layman's terms what the following items mean, or rather, being able to read English, I understand the statements, but what are the implications/context of these statements? No rush, I'm just curious—D

The emergency response method was approved by the CDC ASTDR. As CDC is in the ICLN we expect that they applied the same emergency response method validation guidelines that the EPA would have.

For the remediation stage, there may be a need for a method for MCHM, impurities and possibly disinfection products.

Note that one of the utilities is using a version of EPA method 524.3, which uses a GC-MS instrument, rather than a GC-FID which is the instrument used in the Eastman method.

From: Tingley, Kevin
Sent: Monday, January 13, 2014 1:15 PM
To: Best-Wong, Benita; Bissonette, Eric; Clark, Becki; Evans, David; Frace, Sheila; Grevatt, Peter; Lape, Jeff; Lopez-Carbo, Maria; Newberry, Debbie; Pickard, Brian; Sawyers, Andrew; Shapiro, Mike; Southerland, Elizabeth; Stoner, Nancy; Tidwell-Shelton, Patricia; Tingley, Kevin; Travers, David; Workman, Rosemary
Cc: Hedrick, Elizabeth; Allgeier, Steve; EOC Situation Unit; EOC Incident Coordinator
Subject: OW Management Report - Charleston, WV Chemical Spill - 1/13/2014

OW Management Report – Charleston, WV Chemical Spill – 1/13/2014

(The main sources for this information are an OEM Spot Report issued on 1/12/14, the FEMA Daily Operations Report dated 1/13/14, WARN information from Kevin Morley of AWWA, Michael Lapinski (the DHS-FEMA Federal Coordinating Official (FCO)), and sampling/analysis/treatment information from Elizabeth Hedrick and Steve Allgeier of EPA. New information since the latest OW Management Report is highlighted.)

Situation:

On January 10, the President approved an Emergency Declaration for the State of West Virginia after a chemical leaked through a secondary containment area at a Freedom Industries chemical plant and into the Elk River in Charleston, WV (pop. 51,018) (NRC#1070627). The chemical (MCHM) (4-methylcyclohexanemethanol) is a flammable solvent used in the coal preparation process and is an irritant to eyes, respiratory system, and skin. FEMA reports that up to 7,500 gallons of chemical leaked in the Elk River near the Kanawha Valley Water Treatment Plant. Based on river flow dilution, officials calculate the chemical concentration in the water to be well below the CDC declared safe level. The Kanawha Valley Water Treatment Plant detected the chemical even after the increased carbon treatment effort was put in place. Freedom Industries is working to clean up the spill at the facility and in the river.

Operators at the Kanawha Valley Water Treatment Plant reported that they could still smell the contaminant even though it was well below the 1.0 mg/L concentration deemed "safe for use" by ATSDR/CDC. It is possible that they were detecting the odorant that was added to the chemical.

Labs and Sampling:

The West Virginia Department of Health and Human Resources (WVDHHR) has been getting lab support established for both West Virginia American Water (WVAW) and the State. DuPont has been providing support in preparing labs and getting analysts trained. Labs now include: State lab (WVDHHR and possibly WVDEP); DuPont; WVAV (Huntington); two National Guard Civil Support Teams (Canton, OH and Washington, DC). WVAW is in the process of getting two contractor labs on board (Matrix and Test America), who have either multiple GC units or several laboratories. The WV National Guard is transporting samples to the labs in DC and OH. The labs will enable the State to process a large number of samples involved in the

distribution system testing.

The emergency response method was approved by the CDC ASTDR. As CDC is in the ICLN we expect that they applied the same emergency response method validation guidelines that the EPA would have.

The latest sample results indicate that the treated water has been consistently less than 1 ppm MCHM over 24 hours, so the water company may now be ready to move to distribution system (DS) sampling. Recent intake (raw river water) samples were very low or non-detect. The recent rain may have helped by diluting the chemical, but the rain may have washed more chemical through the soil into the river.

WVAW and the State are working on getting the drinking water data into an organized electronic format, which will be shared with ATSDR and EPA as well as articulated plans, as developed.

There are no validated drinking water methods for MCHM, its impurities, or the added odorant for the material that was spilled. For the remediation stage, there may be a need for a method for MCHM, impurities and possibly disinfection products. There may be a need for labs to separate high concentration work from low concentration work because of cross-contamination issues.

Treatment:

Two utilities on the Ohio River, downstream of the point where the Kanawha River feeds into the Ohio River have tested powder activated carbon for removal of MCHM. Under the conditions tested, they found that 100 lbs per million gallons achieved greater than 84% removal. Note that one of the utilities is using a version of EPA method 524.3, which uses a GC-MS instrument, rather than a GC-FID which is the instrument used in the Eastman method.

System Flushing:

There is no specific flushing plan for the system yet. The plan will depend on sampling results. One key will be flushing in individual homes/buildings. Procedures for residents to follow are being developed. WVAW will not flush entire system or resume unrestricted use all at once, because the draw on system would be too severe (esp. in combination with broken lines owing to cold weather). There is no specific timeline for lifting restrictions. The timeline will be dictated by the sampling results. Even if results show concentrations < 1 ppm MCHM, there may be residual odor at 0.1 ppm. Customers may be reluctant to use the water, even if the level is protective of health. The water restrictions will be relieved by zone, as results and flushing allow. The restrictions may not be removed in stages of stringency (e.g., "Do Not Use" to "Do Not Drink" to no restriction) as previously contemplated, as that approach may cause too much confusion for customers, particularly if done by zones. This is not yet been decided.

To support the future purge process, West Virginia American Water announced they will apply a 1,000 gallon credit for all customers. Additionally, written guidance will be provided to customers on how to purge their household plumbing and plumbing appliances.

Federal Activities:

The FEMA Regional Response Coordination Center has transition to Level III operations; all ESFs were released, but remain on standby.

The only federal role in testing and analysis of the water quality was CDC ATSDR approving the protocols for sampling and analysis of MCHM and providing the documentation on how they arrived at the at the figure of 1.0 parts per million (ppm) as the point where there are no adverse health effects.

EPA has not been asked to support the water system remediation effort. While EPA has received some data, we have not been asked to review the data, review flushing and resumption of service plans, or concurring with any response decisions.

WARN report:

WVAW has reported that they have sufficient analytical resources at this time. No additional resources are required at this time.

Anticipated Activity:

No calls scheduled.

Kevin Tingley, P.E.

US Environmental Protection Agency

Water Security Division

1200 Pennsylvania Ave NW (4608T)

Washington, DC 20460

202-564-4619 (o)

202-689-9402 (c)